

APPLICANT(S): SHEMI, Amotz et al.
SERIAL NO.: 10/590,053
FILED: April 2, 2008

LISTING OF THE CLAIMS

This listing of claims, amended as indicated below, replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A hybrid module comprising:
an electro-optical component for transmitting or receiving energy;
an electronic component for amplifying and transferring an electric signal to ~~an external~~ said electro-optical component;
a planar light wave circuit formed of a glass layer for providing an opto-electronic signal communication path; and
~~at least one~~ an optical waveguide embedded in and integrally formed with said glass layer forming said planar light wave circuit for propagating said opto-electronic signal communication[[:]].
2. (Currently Amended) A ~~system~~ hybrid module as in claim 1, further comprising an optical fiber plug [[or]] connector.
3. (Currently Amended) A ~~system~~ hybrid module as in claim 1, further comprising an embedded folding ~~micro-mirror~~ micro-mirror embedded in said planar light wave circuit for directing energy transfer between said electro-optical component and said ~~at least one~~ optical waveguide.
4. (Currently Amended) A ~~system~~ hybrid module as in claim 1, wherein said waveguide comprises a tapering portion.
5. (Currently Amended) A ~~system~~ hybrid module as in claim 1, wherein said electro-optical component and said electronic component are enclosed in a heat sink encapsulation.
6. (Currently Amended) A ~~system~~ hybrid module as in claim 5, wherein said heat sink encapsulation comprises a metal cap.

APPLICANT(S): SHEMI, Amotz et al.
SERIAL NO.: 10/590,053
FILED: April 2, 2008

7. (Currently Amended) A ~~system~~ hybrid module as in claim 5, wherein said electro-optical component is coupled to said electronic component.

8. (Currently Amended) ~~system~~ hybrid module as in claim ~~[[5]]~~ 3, wherein said electro-optical component is coupled to said ~~plurality of waveguides~~ waveguide through said embedded folding micro-mirror.

9. (Currently Amended) A ~~system~~ hybrid module as in claim 5, wherein said electro-optical component comprises a current amplifier for amplifying weak signals.

10. (Currently Amended) A method comprising:
fabricating a glass waveguide ~~glass wafer support~~;
producing a support glass wafer;
creating an optical chip by attaching said support glass wafer to said glass waveguide support ~~glass~~; and
creating an electro-optical module by attaching electro-optical components to said glass waveguide support of said optical chip.

11. (Currently Amended) A method as in claim 10, wherein said fabricating said glass waveguide ~~glass wafer support~~ further comprises:
creating a plurality of waveguides using ion exchange technology in a planar lightwave circuit glass layer;
printing electric lines and contacts on said planar lightwave circuit glass layer;
dicing a slot in said planar lightwave circuit glass layer; and
filling said slot in said planar lightwave circuit glass layer with a metal.

12. (Currently Amended) A method as in claim 10, wherein said producing said glass support ~~glass~~ further comprises:
creating a plurality of vias on a glass substrate; coating said vias with a conductive material;
and
printing electrical lines and contacts on both sides of said ~~waveguide glass wafer~~ substrate.

APPLICANT(S): SHEMI, Amotz et al.
SERIAL NO.: 10/590,053
FILED: April 2, 2008

13. (Currently Amended) A method as in claim 12, wherein said creating said plurality of vias ~~comprises~~ are created by wet or dry etching.

14. (Currently Amended) A method as in claim ~~[[10]]~~ 11, wherein said creating said optical chip further comprises:

~~[[D]]~~dicing said waveguide glass wafer support at one side ~~[[at]]~~ to be connected to a fiber optic connector ~~side~~ to create double bars;

~~[[P]]~~polishing said fiber optic connector side; and

~~[[A]]~~attaching pig-tail fibers at an end of each of said plurality of waveguides.

15. (Currently Amended) A method as in claim 10, wherein said ~~attaching said~~ electro-optical components are attached to said optical chip ~~comprises~~ using an active alignment beam.

16. (Currently Amended) A method as in claim ~~[[10]]~~ 14, wherein said creating said electro-optical module further comprises:

~~[[E]]~~encapsulating said electro-optical components and electronic components with a thermal conductive polymer; and

~~[[D]]~~dicing said double bars to create said separate ~~said~~ electro-optical modules.

17. (New) A hybrid module as in claim 1, wherein said electro-optical component is directly mounted on said glass layer forming said planar light wave circuit.

18. (New) A hybrid module as in claim 1, wherein said at least one optical waveguide is formed as a region of ion exchange within said glass waveguide support.